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BOOKS.

A History of the Theories of Aether and Electricity From the age of Descartes to the close of the nineteenth century. By E. T. Whittaker, Hon. Sc. D. (Dubl.); F. R. S.; Royal Astronomer of Ireland. 8vo. Cloth, xiii+475 pages. Price, \$4.50. New York and London: Longmans, Green, & Co.

The author has given in this book a very complete history of the various theories respecting the luminiferous ether held by all the great thinkers since the time of Descartes. In most instances where mathematical treatment is necessary the author uses Vector Analysis, thus making some parts difficult to read for those who are unfamiliar with that branch of mathematics. An idea of the scope of the work may be obtained from the table of contents. The various subjects come under twelve chapters, as follows: Chapter I, The Theory of the Aether in the 17th Century; Chapter II, Electric and Magnetic Science, prior to the Introduction of Potentials; Chapter III, Galvanism, from Galvani to Ohm; Chapter IV, The Luminiferous Medium, from Bradley to Fresnel; Chapter V, the Aether as an Elastic Solid; Chapter VI, Faraday; Chapter VII, The Mathematical Electricians of the Middle of the Nineteenth Century; Chapter VIII, Maxwell; Chapter IX, Models of the Aether; Chapter X, The Followers of Maxwell; Chapter XI, Conduction in Solutions and Gases, from Faraday to J. J. Thomson; Chapter XII, The Theory of Aether and Electrons in the Closing Years of the 19th Century.

Every teacher of Physics will want this thoroughly scholarly work in his library. F.

Advanced Calculus. By Edwin Bidwell Wilson, Associate Professor of Mathematics, Massachusetts Institute of Technology. 8vo. Cloth, ix+566 pages. Price, \$5.00. Boston and Chicago: Ginn & Co.

"Professor Wilson's *Advanced Calculus* supplies in a single volume a comprehensive second course in calculus. Although modern rigorous tendencies are given due attention, the chief aim of the book is to confirm and to extend the student's knowledge of the great formal methods of analysis that are essential alike to the practical and to the pure mathematician. To connect with elementary texts, two chapters in review are supplied, and many subsequent chapters are tempered with material which is essentially review. Advanced differential calculus is represented by work on Taylor's formula, with special reference to approximate analysis, partial differentiation of explicit and implicit functions, complex numbers, and vectors. As an extension of previous formal work in integration, four chapters are given to the integration of differential equations. In integral calculus line integrals, multiple integrals, infinite integrals, special functions defined by integrals, and the calculus of variations are treated. Then follow chapters on series, special developments, functions of a complex variable, elliptic functions, and functions of real variables. Throughout the work especial attention has been paid to the needs of students of applied mathematics and mathematical physics. A very large number of exercises have been provided, and every attempt has been made to furnish a thorough, practical, teachable, live textbook and laboratory manual of higher calculus."

The publishers of this work have again put teachers of the Calculus under great obligation to them by bringing out this splendid treatise which cannot be of great advantage commercially, but which will be of immense value pedagogically. They, as well as its author, deserve the thanks of American mathematicians. F.